LISTING OF CLAIMS

This listing, if entered, replaces all prior versions of the claims in the application.

1. (Previously Presented) The method of claim 36 wherein said first cache is maintained by said upper-level system .

2. (Original) The method of claim 1, wherein
a single cache comprises said first and said second caches.

3. (Canceled)

4. (Currently Amended) The method of claim [[3]] 1, further comprising:
partially writing a unit of storage of a storage unit by writing a portion of said information from said second unit of storage to said unit of storage of said storage unit; and
partially writing said unit of storage of said storage unit by writing new information to said unit of storage of said storage unit.

5. (Currently Amended) The method of claim [[3]] 1, wherein said cloning ~~copying~~ comprises:
reading said information from said first unit of storage; and
writing said information to said second unit of storage.

6. (Previously Presented) The method of claim 5, further comprising:
writing to said first unit of storage after said reading.

7. (Original) The method of claim 5, further comprising:
reading said information from said second unit of storage; and
calculating parity information using said information.

8. (Canceled)

9. (Previously Presented) The method of claim 1, wherein said cloning comprises:

said first unit of storage is to be modified if said first unit of storage is to be written to.

10. (Previously Presented) The method of claim 1, further comprising:

reading said information from said second unit of storage; and

calculating parity information using said information.

11. (Previously Presented) The method of claim 1, further comprising:

modifying said first unit of storage after said performing said cloning.

12. (Original) The method of claim 11, wherein said modifying comprises:

writing to said first unit of storage.

13. (Original) The method of claim 1, wherein said cloning comprises:

determining if said information will be needed in the future; and

performing said cloning if said information will be needed in the future.

14. (Currently Amended) A storage system comprising:

an old data cache, wherein said old data cache is configured to be maintained by one of an upper-level system and a lower-level storage module ~~system~~, and accessed by the other of said upper-level system and said lower-level storage module ~~system~~.

15. (Currently Amended) The storage system of claim 14,

wherein said upper-level system is communicatively coupled to said old data cache; and

said lower-level storage module ~~system~~ is communicatively coupled to said old data cache and said upper-level system.

16. (Currently Amended) The storage system of claim 15, wherein said lower-level storage module ~~system~~ is a volume manager.

17. (Currently Amended) The storage system of claim 16, wherein said lower-level storage module ~~system~~ comprises a cache.

18. (Currently Amended) The storage system of claim 17, wherein said lower-level storage module ~~system~~ is configured to clone information from a page in said cache to a page in said old data cache.

19. (Original) The storage system of claim 18, wherein said upper-level system is configured to access said page in said old data cache.

20. (Original) The storage system of claim 15, wherein said upper-level system comprises a cache.

21. (Original) The storage system of claim 20, wherein said upper-level system is configured to clone information from a page in said cache to a page in said old data cache.

22. (Currently Amended) The storage system of claim 21, wherein said lower-level storage module ~~system~~ is configured to access said page in said old data cache.

23. (Original) The storage system of claim 20, wherein said upper-level system is one of a filesystem, a database and a hardware RAID controller.

24. (Currently Amended) The storage system of claim 15, further comprising:

storage unit, wherein

said lower-level storage module ~~system~~ is coupled to control said storage unit.

25. (Original) The storage system of claim 24, further comprising:

a parity cache, wherein

said storage unit is a RAID, and

said parity cache is configured to store parity information corresponding to data read from said RAID.

26. (Original) The storage system of claim 24, wherein

said storage unit comprises a source volume and a snapshot volume, and

said lower-level storage module is configured to write information from a page in said old data cache to said snapshot volume.

27. (Currently Amended) An apparatus comprising:

an upper-level system comprising a first cache;

a second cache; and

means for cloning information stored in a first unit of storage into a second unit of storage, wherein

said first unit of storage is stored in said first cache, and

said second unit of storage is stored in said second cache, wherein

said second cache is configured to be accessed by a lower-level storage module.

28. (Original) The apparatus of claim 27, wherein

said means for cloning comprises

means for copying said information from said first unit of storage to said second unit of storage; and

said apparatus further comprises

means for partially writing a unit of storage of a storage unit comprising

means for writing a portion of said information from said second unit of storage to said unit of storage of said storage unit, and

means for partially writing said unit of storage of said storage unit comprising means for writing new information to said unit of storage of said storage unit.

29. (Original) The apparatus of claim 27, wherein

said means for cloning comprises

means for reading said information from said first unit of storage, and

means for writing said information to said second unit of storage; and

said apparatus further comprises

means for writing to said unit of storage, operable to write to said unit of storage after an operation of said means for reading.

30. (Currently Amended) A storage system comprising:

a processor;

computer readable medium coupled to said processor; and

computer code, encoded in said computer readable medium, configured to cause said processor to:

clone information stored in a first unit of storage into a second unit of storage, wherein

said first unit of storage is stored in a first cache maintained by an upper-level system, and

said second unit of storage is stored in a second cache configured to be accessed by a lower-level storage module.

31. (Original) The storage system of claim 30, wherein

said computer code configured to cause said processor to clone said information is further configured to cause said processor to copy said information from said first unit of storage to said second unit of storage; and

said computer code is further configured to cause said processor to

partially write a unit of storage of a storage unit by virtue of being configured to write a portion of said information from said second unit of storage to said unit of storage of said storage unit, and

partially write said unit of storage of said storage unit by virtue of being configured to write new information to said unit of storage of said storage unit.

32. (Original) The storage system of claim 30, wherein

said computer code configured to cause said processor to

read said information from said first unit of storage, and

write said information to said second unit of storage; and

said computer code is further configured to cause said processor to

write to said unit of storage after said reading.

33. (Currently Amended) A computer program product comprising:

a tangible computer readable medium encoding:

a first set of instructions, executable on a computer system, configured to clone information stored in a first unit of storage into a second unit of storage, wherein

said first unit of storage is stored in a first cache maintained by an upper-level system, and

said second unit of storage is stored in a second cache configured to be accessed by a lower-level storage module.

34. (Previously Presented) The computer program product of claim 33, wherein said first set of instructions comprises

a first subset of instructions, executable on said computer system, configured to clone said information is further configured to cause said processor to copy said information from said first unit of storage to said second unit of storage; and

said tangible computer readable medium further encodes:

a second set of instructions, executable on said computer system,

configured to partially write a unit of storage of a storage unit by virtue of being further configured to cause said processor to write a portion of said information from said second unit of storage to said unit of storage of said storage unit, and

a third set of instructions, executable on said computer system, configured to partially write said unit of storage of said storage unit by virtue of being further configured to cause said processor to write new information to said unit of storage of said storage unit.

35. (Previously Presented) The computer program product of claim 33, wherein said first set of instructions comprises

a first subset of instructions, executable on said computer system, configured to read said information from said first unit of storage, and

a second subset of instructions, executable on said computer system, configured to write said information to said second unit of storage; and

said tangible computer readable medium further encodes:

a second set of instructions, executable on said computer system, configured to write to said unit of storage after said reading.

36. (Currently Amended) A method comprising:

maintaining a first cache ~~and a second cache~~, wherein said maintaining is performed by one of an upper-level system and a lower-level storage module ~~system~~;

cloning information stored in a first unit of storage into a second unit of storage, wherein said first cache comprises said first unit of storage and [[said]] a second cache comprises said second unit of storage; and

~~providing~~ accessing [[to]] said second cache, wherein said accessing is performed by the other of said upper-level system and said lower-level storage module ~~system~~.